



# THE MOTOROLA MC9190-G

## RUGGED 802.11A/B/G GUN-STYLE MOBILE COMPUTER

### **IMPROVE PRODUCTIVITY AND ACCURACY IN THE MOST EXTREME ENVIRONMENTS**

When you need to scan bar codes and collect data in the harshest of environments, Motorola's MC9190-G is ready for the job. Whether your workers are managing inventory in industrial warehouses, searching for materials in subzero temperatures out in the yard or repairing equipment on a military base in a hot sandy desert, the MC9190-G helps get the job done right and fast. You can count on dependable scanning of virtually any bar code — even if the label has been damaged. With the next generation of the highly successful MC9000-G Series in hand, scanning is easier than ever, with point and shoot simplicity for bar codes that are inches or meters away, on the top shelves in the warehouse or deep inside a truck. The new high resolution backlit display is easy to view in any lighting — from the dim corners of a warehouse to the bright sunlight out on the loading dock or tarmac. With more processing power and memory, you can give your workers the same fast and dependable application

performance they expect on their desktop. And since the MC9190-G is compatible with all your existing MC9000 Series accessories, you can cost-effectively upgrade to the latest in mobile computing technologies — no need to purchase new cradles, cables, headsets or holsters.

### **NEW SCANNING TECHNOLOGY... AND MORE SCANNING OPTIONS**

The MC9190-G offers the very latest in scanning technology, so no matter what type of bar codes you need to scan, whether they are near or far, or even damaged or dirty, you can count on the first time split second scanning that has made Motorola the clear leader in the bar code industry.

Whether you are currently using 1D and 2D bar codes or want to migrate to 2D technology to accommodate GS1 bar codes for richer inventory management, our revolutionary 2D imager engines deliver laser-like performance and easy omnidirectional scanning for all bar codes. Choose the imager that best meets your business needs:

Our groundbreaking new long-range imager, the SE4600, can scan a bar code as close as 8 inches (20.32 cm) to as far as 30 feet (9.14 m) away in any lighting condition — no special reflective label stock required.

Our general purpose 2D imager, the SE4500-SR, offers the best range and performance on medium and low density 1D and 2D bar codes.

The SE4500-DL is optimized for medium to high density bar codes as well as the bar codes found on driver's licenses and other identification documents, ideal for border crossings as well as the healthcare and electronics industry.

And our DPM option, the SE4500-HD, is tailored for very high density bar codes as well as virtually any direct part mark (DPM) — including dot peen, laser etch, ink mark, chemical etch, inkjet mold, cast and thermal spray — enabling automotive and aeronautics manufacturers to easily track and trace every part to improve safety and comply with government regulations.

If you only need to scan 1D bar codes, two options allow you to tailor your MC9190-G for your scanning environment. The new SE960 is designed for near contact to mid-range scanning, while the SE1524 allows you to instantly capture 1D codes as far as 45 ft. (13.72 m) away.

And no matter which engine you choose, you get the first time every time scanning performance you need to keep your business moving and workers productive — all our engines can scan the scratched, dirty and poorly printed codes common in indoor and outdoor warehouse and distribution environments.

## **INDUSTRY LEADING PROVEN RUGGED CONSTRUCTION**

We took the best and made it better. The MC9090-G is known for its superior ruggedness — but the MC9190-G takes rugged design to a new level. Just like its predecessor, the MC9190-G passes the same industry-leading toughness tests, operating reliably after exposure to heat, cold, dust, rain, a spilled cup of coffee — and 2,000 consecutive tumbles in our rotating tumble

## **FEATURES**

### **HIGH-POWERED PLATFORM FOR DESKTOP-STYLE APPLICATION PERFORMANCE**

#### **MPA Motorola MAX MPA 2.0**



Our latest best-in-class standards-based technology architecture that provides numerous benefits:

#### **The most advanced mobile operating systems**

Microsoft's Windows® Mobile® 6.5 increases interoperability with existing enterprise infrastructure, provides a familiar user interface and a flexible development environment, and supports many off-the-shelf business applications; Microsoft WinCE 6.0 provides a robust platform for custom application development

#### **Powerful microprocessor designed for mobility**

The Marvel PXA320 @ 806 MHz provides blazing desktop-like performance — even on the most demanding multi-media applications

#### **The memory to support any application**

256MB RAM/1GB Flash and a user accessible SD card slot with support up to 32GB provide the memory space required to enable robust performance for database and other data processing intensive applications

#### **Built-in support for existing applications**

This common technology platform allows fast, easy and cost-effective porting of existing applications to the MC9190-G, preserving existing application investments

### **ADVANCED WIRELESS CONNECTIVITY**

#### **Works on any wireless LAN**

The 802.11a/b/g CCX v4-compatible tri-mode radio connects to both 2.4GHz and 5GHz WLANs for cost-effective voice and data connectivity in the office and hot spots; 802.11a support enables segmentation of voice traffic to ensure voice quality; VoWLAN support for cost-effective voice and voice-directed applications

#### **The most advanced Bluetooth functionality**

Bluetooth® v2.1 with EDR provides a wireless connection to more device types, including modems, printers, headsets and more; simplifies pairing; improves security; reduces power consumption

### **GOVERNMENT GRADE SECURITY OVER ANY WLAN**



#### **Make sure only authorized users access your devices, your data and your network with Motorola MAX Secure**

Bring wired-line security to your wireless communications without impacting wireless performance through a multitude of security features, including: native FIPS 140-2 Level 1 certification; support for all the latest encryption and authentication protocols; compatibility with Motorola's Mobile Security Suite for device-level protection (device level firewall, intrusion prevention, enforced authentication, data encryption and integrity monitoring protect the data that is resident on and in transit to and from your MC9190-G devices); and compatibility with Motorola's Mobile Virtual Private Networks (MVPNs)

drum. Then we strengthened two of the most vulnerable elements — the touchscreen and the scanner exit window. The hardened touchscreen is now more resistant to wear and tear. And since bar code scanning is one of the most important features, we've fortified the scanner exit window with environmentally friendly ultra strong Gorilla™ glass. Practically impervious to damage, the glass can flex with most everyday bumps and drops without shattering or scratching — and the deep chemical strengthening makes most scratches virtually invisible.

## PROTECT YOUR DATA WITH GOVERNMENT-GRADE SECURITY

Wireless solutions create an instant concern for businesses and government agencies — data security. In addition to standard support for all the latest wireless authentication and encryption protocols and Motorola's tested and certified Virtual Private Networks (VPNs), the MC9190-G adds native FIPS 140-2 Level 1 certification, bringing government grade security

to businesses and government agencies alike. Unlike many other mobile devices, our security features do not impact performance, protecting your data and your productivity.

## EFFORTLESS REAL-TIME TRACKING OF ALL YOUR DEVICES

Keeping track of your devices can be a full time job. But for businesses that have deployed RFID technology, an integrated RFID tag makes keeping track of your MC9190-G mobile computers literally effortless. 'Touchless' asset management becomes a reality. The movement and location of all your devices are instantly visible from the moment they arrive at your facility — no more lost or misplaced devices.

## SAVE POWER AND IMPROVE WORKER SAFETY WITH ENTERPRISE-CLASS MOTION SENSING

An integrated accelerometer offers real business value by preserving battery power, maximizing screen real estate and improving worker safety. When the device

## FEATURES (continued)

### RUGGED DESIGN

 **Motorola MAX Rugged for industry leading rugged design — and reliability**

#### Drop (impact) test

Multiple 6 ft./1.8 m drops to concrete across operating temperature range meets and exceeds MIL-STD 810G

#### Tumble (endurance) test:

Reliable operation after 2,000 3.28 ft./1 m consecutive tumbles (4,000 hits) in Motorola's tumble drum

#### IP64 sealing

Complete protection against dust and splashing liquids

### A MULTITUDE OF SCANNING OPTIONS

**101100 Motorola MAX Data Capture for high-performance capture of literally any type of bar code**

Six scanning options allow you to choose the model that will deliver the best performance in each of your applications:

#### 1D Scanners

SE960: High performance 1D scanning — adaptive scanning maximizes the range and enables scanning of codes that are damaged or underneath shrinkwrap

SE1524-ER: Long range scanning (up to 45 ft./13.71 m) of low and medium density 1D codes — including codes that are damaged or underneath shrinkwrap

#### 2D Imagers

SE4500-SR: Omnidirectional scanning of low/medium density 1D/2D codes

SE4600: Omnidirectional long range scanning of 1D/2D codes — from as close as 8 in./20.32 cm to 30 ft./9.14 m

#### Specialty imagers:

SE4500-DL: Omnidirectional scanning of medium to high density 1D/2D codes and the large PDF codes found on driver's licenses and other identification cards for gate access and border crossings

SE4500-HD: Omnidirectional scanning of direct part marks for track and trace in auto and aerospace manufacturing and reading of very high density 1D and 2D codes



#### Motorola MAX Sensor for the intelligence to sense — and act — on motion

Automatically rotates screen to match device orientation to increase display area; powers down when not in use to preserve battery; automatically logs every drop over 4 ft./1.21 m to improve user accountability and troubleshooting; enables utilization of sensor data in custom applications, such as 'man down'

is not in use, it can automatically power down to sleep mode to conserve power. The display automatically switches between portrait and landscape modes, ensuring the device is always ready to use regardless of orientation and can offer additional display area for information-intensive applications. Each time a free fall event occurs, a history file is updated, providing information that can improve troubleshooting and worker accountability. And since the open architecture provides access to the accelerometer data, you can create customized applications such as 'man down'. Alarms can alert supervisors when a dropped device remains motionless, indicating a potential injury or illness and providing additional security for lone workers who spend their time in remote areas of your facility.

## THE MOTOROLA ADVANTAGE: WORLD CLASS PARTNERS AND WORLD CLASS SUPPORT

When you choose Motorola, our award-winning partner channel provides access to a best-in-class, broad set of ready-to-go and custom applications in your industry,

minimizing deployment time and cost. And no matter what help you might need, we have you covered. If you are implementing your first mobility solution, we can provide assistance at every stage — from planning through design and deployment. If you are adding new applications, we can help you identify whether your present wireless LAN can handle the increased load — as well as any other gaps that need to be addressed to ensure smooth deployment. Since even the most rugged devices require a support plan, Service from the Start with Comprehensive Coverage will keep your devices up and running at peak performance. This unique all-inclusive service covers normal wear and tear as well as internal and external components damaged through accidental breakage, significantly reducing unforeseen repair expenses.

For more information on how you can increase the productivity and accuracy in your most scan intensive applications, please visit us on the Web at [www.motorola.com/mc9190g](http://www.motorola.com/mc9190g) or access our global contacts directory at [www.motorola.com/enterprisemobility/contactus](http://www.motorola.com/enterprisemobility/contactus)

## FEATURES (continued)

### ADVANCED FEATURES

#### Gun-style ergonomics for ease of use and user comfort

Specifically designed for all-day comfort in the most intensive scanning applications

#### Crystal clear text and graphics

Best-in-class 3.7 inch high-resolution backlit color VGA touchscreen display for great readability in any lighting condition — from bright sunlight to total darkness



#### Change keypads in minutes with Motorola MAX Keypad

↔ A family of six interchangeable keypads makes data entry easy for any type of application; if your data entry requirements change or the keypad is damaged, the modular architecture allows you to change the keypad in minutes, right on site

#### Effortless asset management

An integrated UHF Gen 2 RFID tag enables 'touchless' tracking of devices in real time

#### Better battery management

Users can view real time battery information, able to see what level of charge remains and whether the battery is still healthy enough to hold a full charge

#### Backwards compatibility with all MC9000 accessories

Upgrade to the latest mobile technology advancements while preserving your existing accessory investments

#### EASY CENTRALIZED MANAGEMENT

##### Easy global remote management of your devices — and their accessories

Compatibility with Motorola's Mobility Services Platform (MSP) enables comprehensive and flexible centralized management of a broad range of mobile computers and their attached peripherals, anywhere in the world, all from a single console

#### END-TO-END SUPPORT SERVICES


##### Increase uptime and reduce support costs with all-inclusive support plan

Optional Service from the Start with Comprehensive Coverage covers normal wear and tear as well as internal and external components damaged through accidental breakage for both device and select accessories

**THE MC9190-G**  
**MORE RUGGED...**  
**MORE POWERFUL...**  
**WITH MORE OPTIONS**  
**TO MEET YOUR**  
**BUSINESS NEEDS.**

**PRODUCT SPEC SHEET**  
MC9190-G

**PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS**

Dimensions	9.1 in. L x 3.6 in. W x 7.6 in. H 23.1 cm L x 9.1 cm W x 19.3 cm H
Weight	27 oz./765 g (includes battery)
Keyboard	28-, 43- and 53-key; Terminal Emulation (5250, 3270, VT)
Display	3.7 in VGA color
Power	 PowerPrecision Lithium ion battery 2200

**PERFORMANCE CHARACTERISTICS**

CPU	Marvell PXA320 processor at 806 MHz
Operating System	Microsoft Windows CE 6.0 or Microsoft Windows Mobile 6.5 Classic
Memory (RAM/ROM)	256MB/1GB
Expansion	SD/MMC Card
App Development	PSDK and EMDK available through Motorola Support Central Web site
Data Capture Options	SE960: 1D <sup>1</sup> standard range scan engine SE1524-ER: 1D <sup>3</sup> extended range scan engine reads up to 45 ft./13.72 m away SE4500: Omnidirectional 1D/2D imaging engine reads 1D and 2D symbols SE4600: Extended range omnidirectional 1D/2D imaging engine reads 1D and 2D symbols as close as 8 in./20.32 cm and as far as 30 ft./9.14 m SE4500-DL: 1D/2D DL imaging engine reads all 1D and 2D codes as well as the PDF codes found on driver's licenses and other identification documents SE4500-HD: 1D/2D DPM imaging engine reads a wide variety of DPM marks on metal, plastic and glass surfaces, including: dot peening, laser etching, molding, stamping or casting

**USER ENVIRONMENT**

Operating Temp.	-4° to 122° F/-20° to 50° C
Charging Temp.	32° to 104° F/0° to 40° C
Storage Temp.	-40° F to 158° F/-40° C to 70° C
Humidity	5% to 95% non condensing (Condensation Resistant Configurations Available)
Drop Spec	Multiple drops to concrete: 6 ft./1.8 m across the operating temperature range; meets and exceeds MIL-STD 810G
Tumble Spec	2,000 3.28 ft./1 m tumbles at room temperature (4,000 hits) per IEC Tumble Specification
Sealing	IP64 (electronic enclosure, display and keypad) per IEC Sealing Specification

Electrostatic Discharge (ESD)	±15kVdc air discharge; ±8kVdc direct discharge; ±8kVdc indirect discharge
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**WIRELESS DATA COMMUNICATIONS**

WLAN	802.11a/b/g
Data Rate	802.11a: up to 54 Mbps; 802.11b: up to 11 Mbps; 802.11g: up to 54 Mbps
Antenna	Internal
Frequency Range	All country dependent: 802.11a – 5 GHz; 802.11b – 2.4 GHz; 802.11g – 2.4 GHz
WLAN Security	WPA2 Enterprise, 802.1x; EAP-TLS; TTLS (CHAP, MS-CHAP, MS-CHAPv2, PAP or MD5); PEAP (TLS, MSCHAPv2, EAP-GTC); LEAP, EAP-FAST (TLS, MS-CHAPv2, EAP-GTC), WPA2/AES, CCX v4, FIPS 140-2 and IPv6
PAN (Bluetooth)	Bluetooth Version 2.1 with EDR

**PERIPHERALS AND ACCESSORIES**

Cradles	Single-slot Serial/USB, 4-slot Ethernet, 4-slot charge only, forklift
Printers	Supports extensive line of Motorola-approved printers
Charger	4-slot battery charger
Other Accessories	Cable adapter module; snap-on magnetic stripe reader; modem module; full set of holsters; full set of cables; Motorola approved CAC Reader for government applications

**REGULATORY**

Electrical Safety	Certified to UL60950-1, CSA C22.2 No. 60950-1, EN60950-1/IEC60950-1
Environmental	RoHS-compliant
WLAN and Bluetooth	USA: FCC Part 15.247, 15.407 Canada: RSS-210 EU: EN 300 328, EN 301 893
RF Exposure	USA: FCC Part 2, FCC OET Bulletin 65 Supplement C Canada: RSS-102 EU: EN62311, EN50371
EMI/RFI	USA: FCC Part 15 Canada: RSS-210, ICES 003 Class B EU: EN 301 489-1, EN 301 489-17, EN55022 Class B, EN55024
Laser Safety	IEC Class2/FDA Class II in accordance with IEC60825-1/EN60825-1
LED Safety	IEC/EN60825-1 and IEC/EN62471







For countries outside USA, Canada or European Economic Area, consult your local Motorola representative.

**HAZARDOUS LOCATION CERTIFICATIONS**

UL Class I, II, III Division 2, Groups A, B, C, D, F, G (Select Configurations Only)
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<sup>1</sup> Tolerant to typical artificial indoor and natural outdoor (direct sunlight) lighting conditions. Fluorescent, Incandescent, Mercury Vapor, Sodium Vapor, LED<sup>2</sup>: 450 Ft Candles (4,844 Lux) Sunlight: 10000 Ft Candles (107,640 Lux)  
<sup>2</sup> LED lighting with high AC ripple content can impact scanning performance  
<sup>3</sup> Tolerant to typical artificial indoor and natural outdoor (direct sunlight) lighting conditions. Fluorescent, Incandescent, Mercury Vapor, Sodium Vapor, LED<sup>2</sup>: 450 Ft Candles (4,844 Lux) Sunlight: 8,000 Ft Candles (86,111 Lux)

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<b>MAX Rugged</b>	<b>MAX Secure</b>	<b>MAX Sensor</b>	<b>MAX Data Capture</b>	<b>MAX Keypad</b>	<b>MAX MPA</b>





[www.L-TronDirect.com](http://www.L-TronDirect.com)

800-830-9523

[info@L-Tron.com](mailto:info@L-Tron.com)

596 Fishers Station Dr | Victor, NY | 14564 | Suite 1 A

[www.L-Tron.com](http://www.L-Tron.com)

